mk-12

Office Action Summary	Application No.	Applicant(s)	
	09/851,496	CHANDAVASU ET AL.	
	Examiner	Art Unit	
	Krishnan S Menon	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) *1-12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

This is a revised office action and supercedes the office action mailed 11/25/2002 .

Extension Fee: A one-month extension fee had been charged to the deposit account because the response to the request for election/restriction was mailed on 9/10/02, beyond one month after the acknowledged date of receipt of 7/18/02 of the written request for election/restriction.

Claims 1-48 are pending in this application. Claims 1-12, being non-elected, are withdrawn from consideration.

Specification

The disclosure is objected to because of the following informalities:

1. Lines 13 and 14, page 14 defines first component as 90% and second component as 10%. Lines 14 and 15 of page 7 define first component as the minor component and second component as the major component.

2. Minor component is defined as first polymeric component in line 14, page 7. Subsequently, it is stated as just 'first component' in other parts of the specification

3. Lines 13-18, page 14: derivation of the proportions of first, second and third components unclear. Since all components are polymers, 'weight of polymers' in line 17 could mean the total weight of the three components together. If that is the case, 90:10:5 mix will produce <5% of third component.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13, 14, 16, 31, 32 and 34 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Perez et al (US 6,331,343 B1).

Perez (343) teaches a method of preparation of a membrane and a membrane made by the method comprising domains of a first polymer uniformly distributed in a second polymer (col 1 lines 60-67; col 5 lines 15-20), second polymer comprising three dimensional network of pores (col 4 lines 53-67, col 5 lines 1-6, col 5 line 44 – col 6 line 5) of dia about 10 nanometers and above (col 2 lines 10-15), porosity >5% (col 8 lines 50-64), film composition having first polymer 1-35% (col 3 lines 40-50, col 5 lines 7-14), second polymer immiscible with the first (examples, col 3 lines 38-50, col 4 lines 4-10), second polymer >65% (col 3 lines 40-50), stretching (col 2 lines 1-25) as in instant claims 13 and 31. The film could be cast as in instant claims 14 and 32 (col 7 lines 64-66), or by extrusion as in instant claim 16 and 34 (col 6 lines 54-64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 17-20 and 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez (343) in view of Fisher et al (US 5,013,439).

Perez (343) teaches a process and a microporous membrane prepared by blending a first and a second polymer, forming a film and then stretching the film to obtain a porous membrane as described above. Perez (343) teaches the hot stretching step at a temperature about 15 deg C below the glass transition temperature of the minor component (first polymer: PBT) (example 1, col 18 lines 15-25; example 7 col 21 lines 20-28; the glass-transition temp of PBT is >190C: material property) to 100-400% of original dimensions (col 9 lines 8-10); annealed above the hot stretch temperature under tension (col 9 lines 38-43).

Perez (343) teaches every element of claims 17-20 and 35-38 except for the first cold stretch before the hot stretch as in instant claim 17, cold stretch temp and % stretch, and the annealing

temperature to be 5 to 10C below the Tg of the first polymer. Fisher (439) teaches cold stretching at about 15-25C to about 30% more than the original dimension (col 6 lines 26-40) before hot stretching and annealing above the hot stretch temperature to make microporous membranes using thermoplastic polymers like polypropylene. It would be obvious to one of ordinary skill in the art at the time of invention to use the teachings of Fisher (439) and cold stretch the film before hot stretching as taught by Perez (343) to obtain decreased pore size and increased pore densities as taught by Fisher (439) (abstract). Perez (343) also does not specify the annealing temperature. However, one of ordinary skill in the art at the time of invention would chose a temperature above the stretching temperature but below the Tg of the first (minor) polymer to anneal the stretched film to obtain improved crystallinity of the second polymer and remove imperfections, while not disturbing the first polymer structure.

2. Claims 21-24, 26-30, 39-42, and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez (343) in view of Fisher et al (US 5,013,439), further in view of Shibata et al (US 6,217,687).

Perez (343) in view of Fisher (439) teaches all the elements of claims 21-24, 26-30, 39-42, and 44-48, with the possible exception of the compatibilizing block copolymer and the process of mixing said block co-polymer to make the film as in instant claim 21-23 and 39-41. Shibata (687) teaches such a compatibilizing co-polymer for improving the stretchability (col 5 lines 8-13) in a thermoplastic microporous membrane formed by polyethylene and having a filler like PBT (col 5 lines 58-65). It would be obvious to one of ordinary skill in the art at the time of invention to use a compatibilizing copolymer in the membrane for improving stretchability as taught by Shibata (687) in the membrane as taught Perez (343) in view of Fisher (439). One of ordinary skill in the art at the

time of invention obviously would have three choices for the order of mixing such as all the three polymers together as in instant claim 22 and 40, first polymer and copolymer together followed by the second polymer as in instant claim 23 or 40, or copolymer and second polymer together and then the first polymer, and one could chose any of the three choices.

3. Claims 15, 25, 33, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perez (343) in view of JP58-020273.

Perez (343) teaches all the elements of claims 15,25,33 and 43 except for the spray application of the composition on a substrate. JP'273 teaches electrostatic spray coating of polyethylene on a substrate to make a sheet (4-fig) and then heating between two rolls to form the film. It would be obvious to one of ordinary skill in the art at the time of invention to coat the composition of Perez(343) on a substrate as taught by JP '273 to make the membrane because it provides a solvent and other contaminant free coating.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Krishnan S. Menon
Patent Examiner
December 2, 2002

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SUPERVISORY PATENT EXAMINER
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